

Mediterranean tribes which caused the piratical onslaughts on Egypt in the thirteenth and twelfth centuries B.C., in which Cretan wanderers, expelled from their island by the northern newcomers, may well have taken part. It is certain that before this time the highly civilised Minoan Cretans or *Keftiu* had disappeared from the ken of the Egyptians, and are no more seen in Egyptian wall-paintings. One result of this convulsion seems to have been the settlement of a Cretan tribe, the Philistines, on the coast of Palestine.

When Crete emerges from the dark age which followed the break-up of the Minoan power, we find it a congeries of Greek city-states of the usual type, but of a more quarrelsome disposition than elsewhere; in the Minoan land itself, Gortyna conquers and destroys Knossos and Phaistos, in the east Hieraptyna wages long wars with Praisos and Itanos, and so forth. Crete takes no part in the colonising activity of the new Greece, and is henceforth of no account in Hellas. Her day of glory had passed away with the Heroic age.

I am indebted to Mr. R. C. Bosanquet for information with regard to the work of the British School at Athens in eastern Crete. Subscriptions for this work will be gladly received by Mr. Walter Leaf, 6 Sussex Place, Regent's Park, N.W.

H. R. HALL.

P.S.—Photographs of the remains at Hyrtakina have been published by Messrs. Savignoni and De Sanctis in their publication "Esplorazione Archeologica delle Provincie Occidentali di Creta" (Rome, 1901). From their publication it would appear that Phalasarna, the most westerly site in the island, was certainly of Mycenaean origin. Near the remains of a city is a colossal stone throne, of the same type as those treated of by the late Dr. Reichel in his "Vorhellenische Götterkulte," on which is a relief of a symbolic pillar (see Evans, "Mycenaean Tree and Pillar-Cults," in the *Journal of Hellenic Studies*, vol. xxi. p. 99 *ff.*; reviewed in NATURE, November 14, 1901, Suppl.). The name Phalasarna is of the now easily recognisable "kleinasiatisch" pre-Hellenic type. Kretschmer has pointed out that the last two syllables may well be the same as the name of the Bœotian Arnê, which he has identified with the Lycian word *arñna*, "city" ("Einleitung in die Geschichte der griechischen Sprache," p. 406). There seem to be Mycenaean traces also at Vlithias and at Agia Irene (Kantanos?); see Savignoni and De Sanctis, *loc. cit.*, for photographs of polygonal masonry, &c.

Mr. Bosanquet informs me that he has found Mycenaean pottery-fragments on the small island of Mókhlos (wrongly called Hagios Nikólaos in Kiepert's map of 1897), off the north coast between Kavousi and Sitia.

#### THE SECOND INSTALMENT OF THE BEN NEVIS OBSERVATIONS.<sup>1</sup>

THE forty-second volume of the *Transactions* of the Royal Society of Edinburgh is devoted to the publication of five years' observations at the Ben Nevis Observatories, in continuation of those included in vol. xxxiv. of the same series of *Transactions* published in 1890, with appendices consisting of discussions of the results. It is edited by Dr. Buchan, the meteorological secretary to the directors of the observatories, and Mr. R. T. Omond, honorary superintendent of the observatories. The cost of printing is borne by the Royal Societies of London and Edinburgh. The observations include hourly readings and summaries

of the meteorological elements, together with entries in the log-book at the summit station for the five years 1888-1892, and readings, five times daily, at the public school, Fort William, from January, 1888, to December, 1890; also the hourly readings with various summaries for the Fort William Observatory from the establishment of that institution in the autumn of 1900. There have also been added tables of mean hourly values of the barometer, temperature, &c., at Ben Nevis and Fort William Observatories, computed to the end of 1896, with mean monthly temperatures deduced from independent observations in the Stevenson screen at Fort William for the period August 1, 1890, to December 31, 1896, and differences between the observations in the Stevenson screen and the thermograph screen of the Observatory. It is almost needless to say that the publication of these tables will be welcomed as representing the primary results of an enormous amount of patient and painstaking labour, controlled by a representative board of directors of conspicuous distinction and carried out by a body of enthusiastic observers in circumstances of no little difficulty.

This is not a suitable occasion for dealing independently with the observations, which are presented with the skill and care of which Dr. Buchan is an acknowledged master, and with all the assistance an accomplished printer can afford. We naturally turn to the appendices as representing the scientific results which have been obtained by those who have been associated with the working of the observatories and have devoted time and study to the many problems which the observations suggest.

The appendices consist of a series of papers, some of them *in extenso* and appearing now for the first time, others in abstract or reproduced from the publications of the Royal Society of Edinburgh or the Scottish Meteorological Society by Dr. Buchan, Mr. Aitken, Mr. Buchanan, Mr. Omond, Mr. Mossman and Mr. Rankin.

A brief survey of these discussions is sufficient to show that the problems suggested by the meteorology of Ben Nevis, taken separately or in comparison with that of Fort William, are many and difficult. Dr. Buchan returns to a voluminous but still unexhausted subject in a paper on the diurnal range of the barometer in fine and cloudy weather at stations in various latitudes, from San José, Costa Rica, to Jan Mayen in the North Atlantic. Mr. Aitken's report on atmospheric dust and Mr. Buchanan's discussion of the meteorology of a station in the clouds, as represented by the Ben Nevis records in foggy weather, are already well known contributions to science. The other papers are, as a rule, of less general scope.

Much attention is devoted to the relation of barometric readings at the summit to those at the base station, and here one of the difficulties of Ben Nevis observations becomes very conspicuous. When the velocity of wind reaches or exceeds twenty miles per hour, the barometer reading at the summit no longer represents the pressure of the air within 0.01 inch. All barometric readings with anything more than a moderate wind are subject to a correction of uncertain amount on account of dynamical disturbance. Moreover, the shape of the mountain, with its great cliff on one side of the summit, has a very marked effect upon the wind measures. This circumstance reminds me of a personal experience at Dover during a gale, when the only place in Dover screened from the wind was the top walk of the Admiralty pier, apparently as fully exposed to the gale as any position could be. Such dynamical effects upon barometer and wind make it very difficult to bring the summit observations of these primary meteorological factors into relation with corresponding observations elsewhere.

These are not the only difficulties associated with the reduction of the summit barometer readings to sea level, and the account of the attempts to carry out this reduction

<sup>1</sup> "The Meteorology of the Ben Nevis Observatories." Part ii., containing the Observations for the Years 1888, 1889, 1890, 1891 and 1892, with Appendices. Edited by Alexander Buchan, LL.D., F.R.S., and Robert Trail Omond.

suggests the possibility of regarding the barometric difference between Fort William and the summit as a primary element, without introducing a correction factor based upon a system really applicable only in the case of small heights. Differences from mean value instead of differences from a common hypothetical datum would probably give a more effective representation of the conditions.

The Ben Nevis work, as represented in this volume, is essentially self-contained. In the course of the discussion, observations at other stations are sometimes employed, but the work of other meteorologists concerned with similar problems is hardly referred to. Clayton and Fredlander are the only names I have noticed in the volume not immediately associated with Ben Nevis. This may possibly be accounted for by the majestic isolation of the Ben, but it is in some respects unfortunate. For example, a system is adopted for adjusting the twenty-four-hourly readings for non-periodic changes which is different from that adopted by the Meteorological Council in an annual publication dealing with their first-class observatories, including Fort William. If I judge rightly, one of the two systems must be wrong, and if the error is in Victoria Street it would have been wiser to point out the fact in adopting a different system. Again, a table of equivalents of the numbers of the Beaufort scale and wind velocities is given (pp. 5 and 492), in which numbers on the Beaufort scale are represented by velocities largely exceeding, indeed nearly double, those quoted by Hann ("Meteorologie," p. 377). The practice with regard to the use of velocity equivalents of the Beaufort scale is in a sufficiently chaotic condition already, and it is to be feared that the addition of another scale of equivalents without reference to the reasons for disregarding all other attempts to reduce chaos to order must tend to make confusion a little worse confounded.

The publication of the observations down to 1892, or in part to 1896, may seem to the reader a little belated. The editors are, however, to be warmly congratulated upon the substantial progress made with the work undertaken by the directors. The publication is opportune for two reasons. First, because the question of the future of the observatories is prominently before the public and the volume gives an adequate representation of their work. Secondly, because the International Meteorological Committee meets at Southport next September during the session of the British Association, and the occasion would be a suitable one for the discussion of the interesting questions arising out of observations at high levels. It is justly claimed for Ben Nevis as a high-level station that it is in an unique position. The first recorded entry in the log-book (January 1, 1888) is that the tracks of a hare were seen near the thermometer box. It is not the only hare to be raised on the Ben. If opportunity can be found for the discussion of some of the Ben Nevis hares at Southport, our visitors will relish their highland flavour.

W. N. SHAW.

#### NOTES.

THE following is a list of those to whom the Royal Society has this year awarded medals. The awards of the Royal medals have received His Majesty the King's approval:—The Copley medal to Lord Lister, in recognition of the value of his physiological and pathological researches in regard to their influence on the modern practice of surgery. The Rumford medal to the Hon. Charles Algernon Parsons, for his success in the application of the steam turbine to industrial purposes, and for its recent extension to navigation. A Royal medal to Prof. Horace Lamb, for his investigations in mathematical physics.

NO. 1725, VOL. 67]

A Royal medal to Prof. Edward Albert Schäfer, for his researches into the functions and minute structure of the central nervous system, especially with regard to the motor and sensory functions of the cortex of the brain. The Davy medal to Prof. Svante August Arrhenius, for the application of the theory of dissociation to the explanation of chemical change. The Darwin medal to Mr. Francis Galton, for his numerous contributions to the exact study of heredity and variation contained in "Hereditary Genius," "Natural Inheritance" and other writings. The Buchanan medal to Dr. Sydney A. Monckton Copeman, for his experimental investigations into the bacteriology and comparative pathology of vaccination. The Hughes medal to Prof. Joseph John Thomson, for his numerous contributions to electric science, especially in reference to the phenomena of electric discharge in gases.

MEN of science do not need to be reminded that their interests are cosmopolitan. Contributions to natural knowledge are not weighed in political balances, but by a scale of worth independent of nationality. Every effort should therefore be made to give clear evidence of this unity of spirit and bond of intention. An opportunity of doing this is afforded by the meeting of the American Association for the Advancement of Science, to be held in Washington, D.C., from December 29 of this year to January 3, 1903. At the recent Belfast meeting of the British Association, Prof. C. S. Minot, the president of the sister association across the Atlantic, gave a sincere and hearty invitation to the members of our Association to attend the forthcoming meeting at Washington. There are doubtless many men of science who would accept the invitation with the keenest pleasure if they could leave their work for the few weeks required for a visit to the United States; and if they are unable to do so the loss and regret will be theirs. To those who are able to make the journey, it ought to be regarded as almost a duty—though a pleasurable one—to attend the meeting. The mid-winter meeting is an experiment on the part of the American Association, but it has attracted a large number of affiliated societies, and there is every promise that the meeting will be an important one. Since Prof. Minot gave the cordial invitation at Belfast, a letter has been received from the permanent secretary of the American Association, Dr. L. O. Howard, expressing the hope that at least some of the officers and members of the British Association will be present at the Washington meeting. It will be to the advantage of both science and civilisation if this friendly invitation is accepted.

ANOTHER meeting which men of science who have a few months' holiday at the end of next year should attend is that of the Australasian Association, to be held in Dunedin, New Zealand, in January, 1904. Mr. G. M. Thomson, honorary secretary, has sent a letter to the general secretaries of our Association asking them to make known to members that special opportunities will be given to see the most interesting sights in New Zealand, so that the visit may be made a source of profit as well as of pleasure. Dunedin is the most southerly city of any importance in the British Empire, and it is scarcely necessary to remark that many lands and peoples of interest can be seen by men of science who are able to take a trip around the world to New Zealand. A formal invitation to attend the meeting will be brought before the members of the British Association next year at Southport.

DR. P. L. SCLATER, F.R.S., has resigned the secretaryship of the Zoological Society of London, and only holds office until his successor is appointed. The council has passed the following resolution on this subject and ordered it to be entered on their minutes:—"The president, vice-presidents and council of the Zoological Society of London desire to